Fish Culture

For more information on this project, please contact:
Alan Johnson
Rathbun Fish Culture Research Facility
15053 Hatchery Place
Moravia, Iowa 52571
(641) 647-2658
Alan.Johnson@dnr.iowa.gov

Walleye Culture Research, Making a Great Product Better!

Our research on growout of walleye to nine inches has focused on methods that improve survival and feed conversion. Feed costs are typically 27% of the total cost to produce walleye. Research conducted on uniformity grading in 2007 and 2008 resulted in reduction of production cannibalism rates to 4% in 2008, thus, survival was improved. Also in 2008, we evaluated a feeding regime that reduced feed conversion ratio (FCR) to 1.4 lbs of feed fed per pound of fish gain. This feed efficiency research continued in 2009 and 2010 and resulted in 1.4 and 1.3 FCR, respectively. Known fish growth rates, tank population, and feed conversion rates were integral to achieving this improvement in feed efficiency. As a result, the feed costs were reduced and there was no reduction of growth rate or final size obtained.

In 2010, research was planned at the Spirit Lake Fish Hatchery (SLFH) to evaluate how initial size of walleye affected final fish size. However, due to poor survival in nursery lakes, the experiment consisted of transporting walleye fingerlings produced in lined ponds at Rathbun Fish Hatchery (RFH) to SLFH and monitoring growth and survival during habituation and growout. At both hatcheries, similar standard protocols for habituation were followed: a dark room with a submerged light in each tank and fish were fed the Otohime diet. Survival of RFH fingerlings transported to SLFH fish through habituation was 85.2% and comparable to 84.0% habituation survival at RFH. At the end of habituation, fish were graded to remove the smaller fish from the population. Growout performance was evaluated on 14 September prior to stocking. At harvest, growth of fish from RFH were 7.24 inches, the largest ever produced by SLFH. While in 2009 fish that originated from nursery lakes reached 6.9 inches by 28 September. These results demonstrate that walleye fingerlings can be transported from RFH to SLFH without affecting habituation survival and produce large fish for stocking Northwest Iowa Fisheries. However, rearing space limits the numbers of walleye that can be produced at SLFH.

Currently, all of Iowa's large walleye are produced in a tandem pond to tank culture method where fry are stocked in ponds and grown on natural prey items, then converted to dry feed and grown to eight inches. Tank culture of fry on dry feeds without pond culture has been evaluated at Rathbun Fish Culture Research Facility; however, some deformity of fry remains a concern. In 2010, we compared performance and survival of fry fed the Otohime and Gemma diets. Survival of fry fed the Otohime diet (76.0%) was greater than the survival of fry fed Gemma (48.3%) to 34 days post hatch. Further research is needed to determine the factors that cause developmental deformity of intensively-reared walleye on dry feeds.